WHAT IS CLAIMED IS:

1   1.   A method, comprising:

2   allocating, by a protocol processor, metadata related to a packet in a host memory,

3   wherein the host memory is comprised in a host that is coupled to a network adapter;

4   copying the metadata from the host memory to an adapter memory associated with

5   the network adapter; and

6   processing, by the protocol processor, the copied metadata.

1   2.   The method of claim 1, wherein the copying further comprises:

2   fetching the metadata from the host memory in anticipation of a requirement of

3   for protocol processing of the metadata by the protocol processor.

1   3.   The method of claim 1, wherein the metadata is stored in a protocol

2   control block of a transport protocol, and wherein the protocol control block indicates a

3   state of a session handled by the protocol processor.

1   4.   The method of claim 1, further comprising:

2   maintaining a data structure to indicate sessions capable of processing requests;

3   receiving, by the protocol processor, a request for sending a packet; and

4   copying the metadata, in response to determining based at least in part upon the

5   data structure that the request can be associated with a session that is capable of

6   processing the request.

1   5.   The method of claim 1, further comprising:

2   maintaining a data structure to indicate sessions capable of processing requests;

3   receiving, by the protocol processor, a request for sending a packet;

4   determining from the data structure whether the request can be associated with a

5   session that is capable of processing the request;

6   if the request cannot be associated with any session that is capable of processing

7   the request then queuing the request for later processing.

1   6.   The method of claim 1, further comprising:

2   maintaining a delayed acknowledgment timer, wherein the delayed

3   acknowledgment timer is associated with a session;

4   determining if the delayed acknowledgment timer is likely to expire in a period of

5   time;

6   if the delayed acknowledgment timer is likely to expire in the period of time, then

7   copying the metadata.

1   7.   The method of claim 1, wherein the protocol processor is coupled to the

2   network adapter, wherein the network adapter is an offload engine adapter, and wherein

3   the host memory is larger in size than the adapter memory.

1   8.   The method of claim 1, wherein the protocol processor is implemented in

2   hardware or software, and wherein the network adapter is a part of a central processing

3   unit of the host.

1   9.   A network adapter, wherein the network adapter is capable of being

2   coupled to a host having a host memory, the network adapter comprising:

3   an adapter memory associated with the network adapter;

4   a protocol processor, wherein the protocol processor is capable of allocating

5   metadata related to a packet in the host memory, copying the metadata from the host

6   memory to the adapter memory, and processing the copied metadata

1   10.   The network adapter of claim 9, wherein copying the metadata further

2   comprises:

3   fetching the metadata from the host memory in anticipation of a requirement of

4   for protocol processing of the metadata by the protocol processor.

1   11.   The network adapter of claim 9, wherein the metadata is stored in a

2 protocol control block of a transport protocol, and wherein the protocol control block

3 indicates a state of a session handled by the protocol processor.

1   12.   The network adapter of claim 9, wherein the protocol processor is further

2 capable of:

3   maintaining a data structure to indicate sessions capable of processing requests;

4   receiving a request for sending a packet;

5   copying the metadata, in response to determining based at least in part upon the

6 data structure that the request can be associated with a session that is capable of

7 processing the request.

1   13.   The network adapter of claim 9, wherein the protocol processor is further

2 capable of:

3   maintaining a data structure to indicate sessions capable of processing requests;

4   receiving a request for sending a packet;

5   determining from the data structure whether the request can be associated with a

6 session that is capable of processing the request; and

7   queuing the request for later processing if the request cannot be associated with

8 any session that is capable of processing the request.

1   14.   The network adapter of claim 9, wherein the protocol processor is further

2 capable of:

3   maintaining a delayed acknowledgment timer, wherein the delayed

4 acknowledgment timer is associated with a session;

5   determining if the delayed acknowledgment timer is likely to expire in a period of

6 time; and

7   if the delayed acknowledgment timer is likely to expire in the period of time, then

8 copying the metadata.

1   15.   The network adapter of claim 9, wherein the protocol processor is coupled

2   to the network adapter, wherein the network adapter is an offload engine adapter, and

3   wherein the host memory is larger in size than the adapter memory.

1   16.   The network adapter of claim 9, wherein the protocol processor is

2   implemented in hardware or software, and wherein the network adapter is a part of a

3   central processing unit of the host.

1   17.   A system in communication with data storage, comprising:

2   a host;

3   a data storage controller to manage Input/Output (I/O) access to the data storage,

4   wherein the data storage controller is coupled to the host;

5   a network adapter coupled to the host;

6   a host memory coupled to the host;

7   an adapter memory associated with to the network adapter;

8   a protocol processor, wherein the protocol processor is capable of allocating

9   metadata related to a packet in the host memory, copying the metadata from the host

10   memory to the adapter memory, and processing the copied metadata.

1   18.   The system of claim 17, wherein copying the metadata from the host

2   further comprises:

3   fetching the metadata from the host memory in anticipation of a requirement of

4   for protocol processing of the metadata by the protocol processor.

1   19.   The system of claim 17, further comprising:

2   a data structure to indicate sessions capable of processing requests, wherein the

3   protocol processor is capable of receiving a request for sending a packet, and wherein the

4   protocol processor is capable of copying the metadata, in response to determining based

5   at least in part upon the data structure that the request can be associated with a session

6   that is capable of processing the request.

1   20.   An article of manufacture, comprising a storage medium having stored

2   therein instructions that when executed by a machine results in the following:

3   allocating, by a protocol processor, metadata related to a packet in a host memory,

4   wherein the host memory is comprised in a host that is coupled to a network adapter;

5   copying the metadata from the host memory to an adapter memory that is

6   associated with the network adapter; and

7   processing, by the protocol processor, the copied metadata.

1   21.   The article of manufacture of claim 20, wherein the copying further

2   comprises:

3   fetching the metadata from the host memory in anticipation of a requirement of

4   for protocol processing of the metadata by the protocol processor.

1   22.   The article of manufacture of claim 20, wherein the metadata is stored in a

2   protocol control block of a transport protocol, and wherein the protocol control block

3   indicates a state of a session handled by the protocol processor.

1   23.   The article of manufacture of claim 20, wherein the instructions when

2   executed further results in the following:

3   maintaining a data structure to indicate sessions capable of processing requests;

4   receiving, by the protocol processor, a request for sending a packet;

5   copying the metadata, in response to determining based at least in part upon the

6   data structure that the request can be associated with a session that is capable of

7   processing the request.

1   24.   The article of manufacture of claim 20, wherein the instructions when

2   executed further result in the following:

3   maintaining a data structure to indicate sessions capable of processing requests;

4   receiving, by the protocol processor, a request for sending a packet;

5   determining from the data structure whether the request can be associated with a

6 session that is capable of processing the request;

7   if the request cannot be associated with any session that is capable of processing

8 the request then queuing the request for later processing.

1   25.   The article of manufacture of claim 20, wherein the instructions when

2 executed further result in the following:

3   maintaining a delayed acknowledgment timer, wherein the delayed

4 acknowledgment timer is associated with a session;

5   determining if the delayed acknowledgment timer is likely to expire in a period of

6 time;

7   if the delayed acknowledgment timer is likely to expire in the period of time, then

8 copying the metadata.

1   26.   The article of manufacture of claim 20, wherein the protocol processor is

2 coupled to the network adapter, wherein the network adapter is an offload engine adapter,

3 and wherein the host memory is larger in size than the adapter memory.

1   27.   The article of manufacture of claim 20, wherein the protocol processor is

2 implemented in hardware or software, and wherein the network adapter is a part of a

3 central processing unit of the host.